

Possible Additional Road Classifications

Recommendation:

That the March 23, 2016, City Operations report CR_2855, be received for information.

Report Summary

This report highlights current practices of roadway classification systems in other jurisdictions and their impact on traffic management issues, reviews the City of Edmonton's system in the context of Complete Streets, and describes implications of change.

Previous Council/Committee Action

At the August 19, 2015, Transportation Committee meeting, the following motion was passed:

That Administration provide a report on possible additional road classifications and how other large cities have adjusted road classifications to respond to changing traffic volumes and patterns, and how it can be applied to the City of Edmonton.

Report

Edmonton's Current Roadway Classification System and Application:

Cities are made up of networks of roadways; roadway classifications distinguish between the different types of roads that make up the network. The City of Edmonton currently uses "local", "collector" and "arterial" classifications for its roadway network. The arterial network is defined through the Transportation Systems Bylaw 15101. The City of Edmonton uses the roadway classification in a variety of ways. For example, the classification system is used to determine the design of new roadways in new neighbourhoods and the pavement structures used for these roadways. The classification is also used to determine the level of transit service, posted speed limits, level of annual road maintenance, and priorities for roadway reconstruction.

The City also applies the Complete Streets Guidelines, developed to create safe roads, respect neighbourhoods and meet the needs of all users. The Complete Street design process is flexible, recognizing that the design of streets should reflect the area's characteristics and types of street users and weigh priorities for various modes of transportation. The opportunity to introduce Complete Street elements is currently limited to the renewal capital program and the Complete Streets funding package. The combination of engineering design (e.g. through Complete Streets and the Road Safety Strategy), enforcement (e.g. big ticket events) and road user education, is used to ensure roadway users operate safely at prescribed speeds and honour the safe movement of people by all modes of travel.

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Traffic patterns such as speeding motor vehicles have safety implications on all users of a roadway. The roadway designer considers Complete Streets and how the road is intended to operate, based on the roadway classification system, in order to address traffic management issues such as speeding. For example, if a roadway classified as a “local” road is approaching the threshold for traffic volumes on collector roadways or experiencing excessive speeding, this indicates that the roadway should be redesigned when it is time to reconstruct the road. When this redesign occurs, Complete Streets elements, such as traffic calming measures or narrowing travel lane widths, can be considered in order to modify driver behaviour on that road.

It is important to note that roadway classification does not play a direct role in managing traffic volumes, patterns, or controlling driver behaviour (such as speeding, shortcutting, or non-compliance with signage). Classification addresses into operational controls, level of roadway maintenance, and amount of funding to renew the road, but it has a lesser impact on how drivers operate. Driver behaviour is determined in many ways by engineering measures, education, and enforcement. Shortcutting is often the result of the level of congestion on nearby roadways.

Edmonton’s Speed Reduction Process:

Speed reduction initiatives fall outside of the roadway classification system. The typical process to reduce speed limits in residential neighbourhoods follows the Speed Reduction Policy C566 and associated Administrative Procedure. This process allows communities to initiate a neighbourhood speed reduction program that has the potential to lower speed limits on all neighbourhood collector and local roadways to 40 km/h. This applies to all roadways within the neighbourhood, and not just an individual roadway. For implementation of the neighbourhood speed reduction, support is required from 67 percent of residents in the neighbourhood. This process has produced mixed success in past pilot projects.

Administration revises speed zones through a formal bylaw process roughly every six months. Administration has the discretion to impose revised speed zones in between bylaw updates. There is no current process for reviewing speed zones below 50 km/h. A process similar to the neighbourhood speed reduction program, in concert with Community Traffic Management Plans, would have to be developed. It should be noted that reducing speed zones without addressing the design of the roadway or the roadway network connectivity has been shown to result in high driver non-compliance.

For speed limit reductions on individual roadways, a process outside of the neighbourhood speed reduction program must be followed. Amendments to the City’s Speed Bylaw require approval from City Council.

Review of Roadway Classifications in Other Cities:

Administration reviewed current practices in the following municipalities:

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- Calgary
- Ottawa
- Waterloo
- Toronto
- Kitchener

The number and type of classifications varied greatly between municipalities. The classification systems were distinguished by land use contexts, posted speed, number of accesses and traffic volumes. Highlights of the review are provided below and detailed comparisons are provided in Attachment 1.

Number of Classification Categories:

- The highest number of classifications, 21, are described in Ottawa's Road Corridor Planning and Regional Road Corridor Design Guidelines. These are used as an overlay on top of Ottawa's official classification system.
- Calgary follows with 13 roadway classifications, while Toronto's classification system consists of only five classifications.
- Calgary and Ottawa strived to define their roads based on Complete Streets principles. In these cases, in addition to the roadway function (i.e. arterial, collector and local), the classification also considers the type of land use along the corridor (such as industrial, institutional, residential, etc.). The resulting classifications include categories such as Industrial Arterial and Suburban Business/Institutional Arterial).
- Waterloo, Toronto and Kitchener took an alternative approach and added major/minor classifications to either Arterials or Collectors. In these cases, the major/minor status is largely determined based on vehicle volumes.

Experience with new classification systems:

- Consistent feedback from all jurisdictions indicates that reclassifying roads would not manage shortcutting/speeding. Adjusting road connections that link destinations in the roadway network and adjusting roadway cross sections (e.g. mandatory on-street parking or narrower right-of-way) were seen as suitable tools in managing speeding or shortcutting through neighbourhoods.
- Several municipalities described the challenges of identifying daily traffic volumes or speed to distinguish classifications and are considering revisiting this method with the next version of their Transportation Master Plans.

Pros and cons of alternative classification systems:

- Ottawa and Calgary's high numbers of roadway classifications require significant outreach to educate designers on how/where to apply their 'context sensitive standard roads'. As a result, the Complete Streets principles have not been significantly implemented in these cities.

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- Toronto and Waterloo's major/minor designations for their arterial and collector classifications has helped those cities prioritize both the level of maintenance and future roadway renewal projects. Conveying the meaning of expected traffic volumes and speeds for classifications to the public has been challenging.
 - For example, a roadway function may change over time such that thresholds are exceeded and a minor collector begins to exhibit characteristics of a major collector. Due to public opposition, these roads have typically not been reclassified; however, no funding has been approved to improve the roads in order to restrict their function to the minor level classification.

Roadway Classification Changes - Collective Feedback from City Administration:

Staff across the corporation were consulted to assess the potential impacts of a new roadway classification system. Discussion involved possible adjustments to the classification system that could include categorizing roadway as major or minor local, collector, or arterial roadways, and potentially distinguishing roadways by daily traffic volume and/or speed. Staff were also asked to provide suggestions on addressing traffic shortcutting, public engagement on neighbourhood traffic calming or other street design issues. Highlights of the interviews are summarized in this report, with additional details provided in Attachment 2.

It was noted by all staff that collector roadways are significant and should be added to the Transportation Systems Bylaw 15101. The roadway classification system is characterized through the following policies, standards and guidelines:

- Speed Zones Bylaw 6894
- Roadways Design and Construction Standards
- Access Management Guidelines
- Complete Streets Guidelines

City of Edmonton operations and maintenance activities relate to the City's roadway classification system in the following ways:

- Intersection Control: selected based on classification and refined or modified over time based on the operation of the roadway (vehicle volumes, speed, pedestrian movements, etc.).
- School Zones: 30 km/h speeds zones are only permitted on locals and collectors;
- Asset Renewal Funding: funding is allocated based on subcategories of the classifications which are related to pavement structure.
- Level of Maintenance (summer and winter activities): higher priority is generally given to arterials and lower priority to local roads or alleys.

Some of the related operations and maintenance policies that guide the processes described above include:

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- Snow and Ice Control C4091
- Roadway Cleaning C550
- Determination of Assessable Roadway-Related Local Improvements C433D

Planning staff identified that roadway classifications were predominantly used:

1. To ensure a level of roadway maintenance
2. To create a shared language and expectations for roadway elements amongst the City and developers
3. As the base for designing a transportation network for multiple modes of transportation
4. For long term planning documents

Some long term planning documents that use the roadway classification system are outlined below:

- Zoning Bylaw
- Infill Guidelines
- Bicycle Transportation Plan
- Sidewalk Strategy

The introduction of a minor/major designation for arterials or collectors would not significantly affect the day to day work of Administration. It was suggested that new classifications could lead to further confusion among developers and the public in distinguishing and applying classifications. Any new classifications should have a clear definition with design expectations and should be communicated to the public. Internal stakeholders were also asked what new classifications could be added to benefit the delivery of their programs. The results included the classification of a collector roadway that spans multiple neighbourhoods (perhaps a “Commuter Collector”) and a Main Streets designation.

Roadway Classification and Neighbourhood Speeding and Shortcutting

Through the internal feedback and review of other jurisdictions, it was noted that roadway classification is neither used as a tool nor viewed as a solution to shortcutting and speeding issues. Rather, feedback indicated that the following factors have greater influence on the operation and safety of a collector roadway:

- Design of the roadway
- Surrounding land use
- Location in the roadway network
- Number of neighbourhoods served
- Driver behaviour
- Level of enforcement provided on the roadway (e.g. big ticket events)
- Driver education

The factors can influence the variation in operation of the same roadway classification in different neighbourhoods. This may result in the perception of the same classification of roadway being “busier” than another. In order to reduce speeding or shortcutting, the designer should redesign the road to change the “feel” of the roadway and address the functionality of the road within the broader network. All stakeholders identified that the “feel” of the roadway or design is the biggest factor in addressing driver behaviour. Complete Streets provides guidance on tailoring roadways for the neighbourhoods in which people live. The Complete Streets Guidelines, in conjunction with the Road Safety Strategy, ensure that drivers operate at intended speeds, honor signage and respect the safe movement of other modes along a corridor.

Conclusion:

Based on the jurisdictional review and interviews with Administration’s technical experts, it is recommended that the City continue to use a local, collector and arterial roadway classification in concert with the Complete Streets design process and Road Safety Strategy to create livable, sustainable and safe roadways.

Reviews of roadway classification in other municipalities and interviews with members of City Administration indicate that speeding, shortcutting or other traffic management issues would not be solved by the adoption of a new roadway classification system. The general consensus was that altering the “feel” of the roadway and modifying the roadway network connectivity, as described in the Road Safety Strategy, would be more effective in addressing the driver behaviour of speeding and shortcutting.

Policy

- *The Way We Move*, Edmonton’s Transportation Master Plan
 - Strategic Action 7.1(a): Developing a program to proactively identify, evaluate and design projects to optimize the operation of the roadways in key corridors and areas of congestion using traffic management and transportation supply measures.
 - Strategic Action 7.3 (a): Giving priority to maintaining or improving the level of service for transit and goods and services movements.
 - Strategic Action 7.3 (b): Focusing road capacity improvements on the Inner Ring Road and Highway Connectors.
 - Strategic Action 7.3 (c): Giving diminished focus on catering to commuter vehicle traffic growth through the roadway expansion program.
 - Strategic Action 7.3 (d): Completing City obligations for staged construction of 4 lane arterial roadways to provide basic access to new neighbourhoods.
 - Strategic Action 7.3 (e): Undertaking roadway and intersection improvement projects to address safety concerns, transit priority or good and services movement.
 - Strategic Action 7.3 (f): Updating the roadway planning and design objectives and guidelines to reflect the TMP direction. This will outline

appropriate levels of service for new residential development, infill and overall transportation system improvements.

- Transportation System Bylaw 15101
- Speed Zones Bylaw 6894
- Speed Reduction Policy C566
- Complete Streets Policy C573A
- Snow and Ice Control C4091
- Roadway Cleaning C550
- Determination of Assessable Roadway - Related Local Improvements C433D
- Speed Reduction Policy C566

Public Consultation

Interviews were conducted with other jurisdictions to understand best practices and learnings from the implementation of more extensive classifications than those currently used by the City of Edmonton. Classification systems from the following municipalities were reviewed: Calgary, Ottawa, Waterloo, Toronto and Kitchener. In addition to interviews with other jurisdictions, discussions were completed with internal City stakeholders to understand their thoughts on the City of Edmonton's current classification system and to understand whether changes are required.

Attachments

1. Roadway Classification Comparison
2. Internal Stakeholder Input Regarding Road Classification

Others Reviewing this Report

- R. G. Klassen, General Manager, Sustainable Development
- A. Laughlin, General Manager, Integrated Infrastructure Services
- T. Burge, Chief Financial Officer and Treasurer and General Manager, Financial & Corporate Services